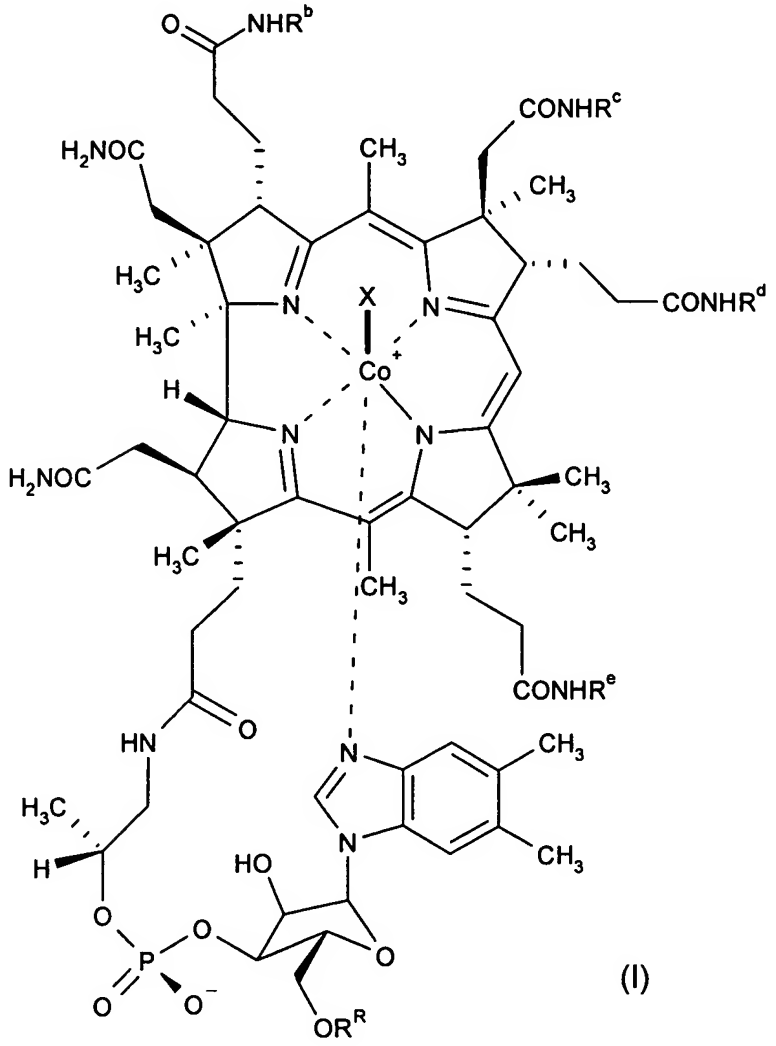
AMENDMENTS TO THE CLAIMS

1. (Currently amended) A cobalamin derivative of formula (I):

~~(a) having no binding affinity or low binding affinity to transcobalamin II and~~

~~(b) retaining activity as a vitamin B12 substitute.~~



(I)

wherein:

(i) R^b, R^c, R^d, and R^e, independently of each other, are a spacer-chelator group, an antibiotic or antiproliferative therapeutic agent, a sterically demanding organic group with 4 to 20 carbon atoms, or hydrogen,

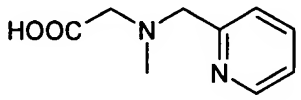
(ii) R^R is a spacer-chelator group or an antibiotic or antiproliferative therapeutic agent, each connected through a linker Z, or hydrogen;

(iii) with the proviso that at least two of the residues R^b, R^c, R^d, R^e and R^R are hydrogen, at least one of the residues R^b, R^c, R^d and R^e is different from hydrogen, and at least one of the residues R^b, R^c, R^d and R^R is a spacer-chelator group;

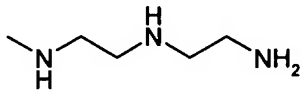
(iv) X is a monodentate ligand; and

(v) the central cobalt (Co) atom is optionally in the form of a radioactive isotope; and

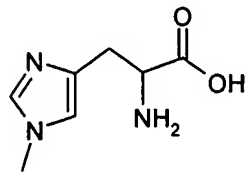
wherein the spacer-chelator group comprises a chelator selected from the chelators of formulae (II) to (IX):



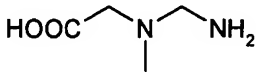
(II)



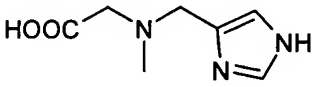
(III)



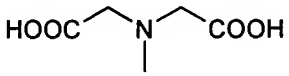
(IV)



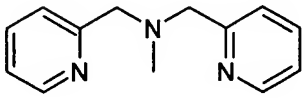
(V)



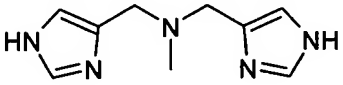
(VI)



(VII)



(VIII)



(IX)

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wherein carboxyl groups in formulae (II) to (IX) may be present as esters; and

said cobalamin derivative: (a) has no binding affinity or less than 20% binding affinity to transcobalamin II when compared to the binding affinity of non-modified cobalamin in a binding test, and (b) retains activity as a vitamin B12 substitute.

2. (Currently amended) The cobalamin derivative according to claim 1
~~(a) having less than 20% of binding affinity to transcobalamin II when compared to the binding affinity of non-modified cobalamin in a binding test, and~~
~~(b)~~ retaining more than 2% of the activity as a vitamin B12 substitute in a growth assay.

3. (Original) The cobalamin derivative according to claim 1
(a) having less than 10% of binding affinity to transcobalamin II when compared to the binding affinity of non-modified cobalamin in a binding test, and
(b) retaining more than 10% of the activity as a vitamin B12 substitute in a growth assay.

4. (Original) The cobalamin derivative according to claim 1
(a) having less than 5% of binding affinity to transcobalamin II when compared to the binding affinity of non-modified cobalamin in a binding test, and
(b) retaining more than 10% of the activity as a vitamin B12 substitute in a growth assay.

5. (Previously presented) The cobalamin derivative according to claim 1 carrying a therapeutic and/or diagnostic agent.

6. (Previously presented) The cobalamin derivative according to claim 1 carrying a radioactive metal.

7. (Cancelled)

8. (Currently amended) The cobalamin derivative according to claim ~~7~~ 1, wherein R^e is hydrogen.

9-10. (Cancelled)

11. (Previously presented) The cobalamin derivative according to claim 6 wherein the radioactive metal is ^{94m}Tc, ^{99m}Tc, ^{188}Re, ^{186}Re, ^{111}In, ^{90}Y, ^{64}Cu, ^{67}Cu or ^{177}Lu.

12. (Currently amended) The cobalamin derivative according to claim ~~7~~ 1, wherein X is cyano, methyl, hydroxy, aquo or a 5'-deoxyadenosyl group.

13. (Original) The cobalamin derivative according to claim 12 wherein X is cyano.

14. (Currently amended) The cobalamin derivative according to claim ~~7~~ 1, wherein the central cobalt atom is the radioisotope ^{57}Co or ^{60}Co.

15. (Currently amended) The cobalamin derivative according to claim 10, wherein
R^b is a spacer-chelator group optionally carrying a metal atom, the spacer is an aliphatic chain of 2 to 4 carbon atoms, and the chelator is of formula (II), wherein the group COOH is optionally in the form of an ester;
R^c, R^d, R^e and R^R are hydrogen; and
X is cyano.

16. (Currently amended) The cobalamin derivative according to claim 15, wherein
R^b is a spacer-chelator group optionally carrying a metal atom, the spacer is an aliphatic chain of 4 carbon atoms, and the chelator is of formula (II), wherein the group COOH is in the form of the ethyl ester;
R^c, R^d, R^e and R^R are hydrogen; and
X is cyano.

17. (Currently amended) The cobalamin derivative according to claim 10, wherein
R^d is a spacer-chelator group optionally carrying a metal atom, the spacer is an aliphatic chain of 3 carbon atoms, and the chelator is of formula (II), wherein the group COOH is optionally in the form of an ester;
R^b, R^c, R^e and R^R are hydrogen; and
X is cyano.

18. (Currently amended) The cobalamin derivative according to claim 10, wherein R^b is a spacer-chelator group optionally carrying a metal atom, the spacer is an aliphatic chain of 2 carbon atoms, and the chelator is of formula (III);
R^c, R^d, R^e and R^R are hydrogen; and
X is cyano.

19. (Previously presented) A pharmaceutical composition comprising a cobalamin derivative according to claim 1.

20. (Previously presented) A method of diagnosis of a neoplastic disease or an infection by microorganisms in a mammal comprising
(a) exposing the mammal suspected of being inflicted by a neoplastic disease or an infection to a period of a vitamin B12 – free diet, and
(b) subsequently applying a cobalamin derivative according to claim 1 carrying a diagnostic agent.

21. (Previously presented) A method of treatment of a mammal suffering from a neoplastic disease or an infection by microorganisms comprising
(a) exposing the mammal in need of treatment to a period of a vitamin B12 – free diet, and
(b) subsequently applying a cobalamin derivative according to claim 1 carrying a therapeutic agent.

22-25. (Cancelled)

26. (Previously presented) The method of claim 20, wherein the cobalamin is effective in cancer imaging.

27. (Cancelled)